PATENT SPECIFICATION

413,450

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Complete Left: April 3, 1934.

Complete Accepted: July 19, 1934.

PROVISIONAL SPECIFICATION.

Improvements in Rope Driving Gear.

I, JOSEPH WALWYN WHITE, of R. White and Sons, Railway Works, Widnes, in the County of Lancaster, a British Subject, do hereby declare the nature of this invention to be as follows:—

The present invention relates to improvements in rope driving gear.

Where the area of contact of a rope with a pulley is limited, as for instance, where the rope passes only for a half-turn or sometimes less around a pulley, slip is likely to occur.

According to the present invention a pulley is made with a conical surface and the driving rope is wedged down this conical surface by means of one or more idler ropes.

In the application of the invention for instance, to the haulage rope of a wire ropeway, making a half-turn round the driving wheel, the driving pulley may be formed with a conical surface. Where a single conical surface is provided the driving rope will tend to move down to the lowest diameter, and is urged to this position against the flange of the pulley by means of one or more turns of an idler fleeting rope, the loop of which is passed around a separate wheel, and any desired tension can be applied to it in known manner.

It will consequently be seen that as the pulley is driven round by the driving gear, the ropes of the idler rope will coil and uncoil round the pulley, and riding down the tapered tread towards the bottom or smallest diameter of the pulley, will exert pressure on the half turn of the haulage rope and press it up against the outer flange, thus increasing its adhesion with the pulley or wheel. This adhesion can be increased by lining this outer flange with wood, leather, or any suitable substance having a relatively high coefficient of friction.

The degree of pressure may be varied by adjusting the amount of taper given to the inclined tread of the wheel or pulley, and also, as above indicated, by varying the pressure on the tension wheel.

Alternatively, the incoming side of the idler rope can be laid on to the smallest diameter of the pulley or wheel, thus working directly against the haulage rope.

In an alternative arrangement, two secondary or idler ropes can be employed, one disposed on each side of the haulage rope passing over a double tapered or grooved pulley or wheel.

If desired, metal or the like loosely floating rings may be interposed between the turns of the secondary idler rope and the haulage rope.

Dated this 7th day of April, 1933.

W. P. THOMPSON & Co.,
12, Church Street, Liverpool, 1,
Chartered & Registered Patent Agents.

COMPLETE SPECIFICATION.

Improvements in Rope Driving Gear.

I, JOSEPH WALWYN WHITE, of R. White and Sons, Railway Works, Widnes, in the County of Lancaster, a British Subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention relates to improvements in rope driving gear.

Where the area of contact of a rope with a pulley is limited, as for instance where the rope passes only for a half-return or sometimes less around a pulley, slip is likely to occur.

According to the present invention, a flanged pulley is made with a conical surface and the power-transmitting rope is wedged down this conical surface by the pressure of one or more idler ropes.

The invention is more particularly described with reference to the accompanying drawings in which:—

Figure 1 is a plan view of part of a rope driving gear.

Figures 2, 3 and 4 are part sectional views of various types of device according to the present invention.

In the application of the invention, for instance, to the haulage rope of a wire ropeway making a half turn round the driving wheel, such as 1, Figures 1 and 2, this driving wheel or pulley may be formed with a conical surface Fig. 2, so that the haulage rope 3 will tend to move down to the lowest diameter and is urged to this position against the flange 4 of the pulley by one or more turns of an idler or fleeting rope 5, the loop of which is passed round a separate wheel, such as 6, mounted for instance on a pivoted yoke 7, and tensioned by tension rod or other suitable device 8.

It will consequently be seen that as the pulley is driven round by the driving gear, the ropes of the idler rope will coil and uncoil round the pulley, and riding down the tapered tread towards the bottom or smallest diameter of the pulley, will exert pressure on the half turn of the haulage rope and press it up against the outer flange, thus increasing its adhesion with the pulley or wheel. This adhesion can be increased by lining this outer flange with wood, leather, or any suitable substance having a relatively high coefficient of friction.

The degree of pressure may be varied by adjusting the amount of taper given to the inclined tread of the wheel or pulley, and also, as above indicated, by varying the pressure on the tension wheel.

Alternatively, the incoming side of the idler rope can be laid on to the smallest diameter of the pulley or wheel, thus working directly against the haulage rope.

In an alternative arrangement, two secondary or idler ropes 9, 10, Figure 3, can be employed, one disposed on each side of the haulage rope passing over a double tapered or grooved pulley or wheel 11.

If desired, metal or the like loosely floating rings 12, Figure 4, may be interposed between the turns of the secondary idler rope 13 and the haulage rope 14.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is :—

1. A rope driving gear including a flanged pulley having a conical surface, the power-transmitting rope thereon being pressed down this conical surface by means of the pressure of one or more idler ropes.

2. A rope driving gear as claimed in Claim 1, in which the idler ropes pass over a displaceable guide tension pulley for the purpose of increasing the tension on the idler rope.

3. A rope driving gear as claimed in Claim 1 in which the pulley is double taper, idler ropes being disposed on either side of the power-transmitting rope.

4. A rope driving gear as claimed in Claims 1 or 3 in which metal or the like annular discs are loosely disposed between the turns of the idler rope and the power-transmitting rope.

5. A rope driving gear constructed substantially as described with reference to the accompanying diagrammatic drawings.

Dated this 29th day of March, 1934.
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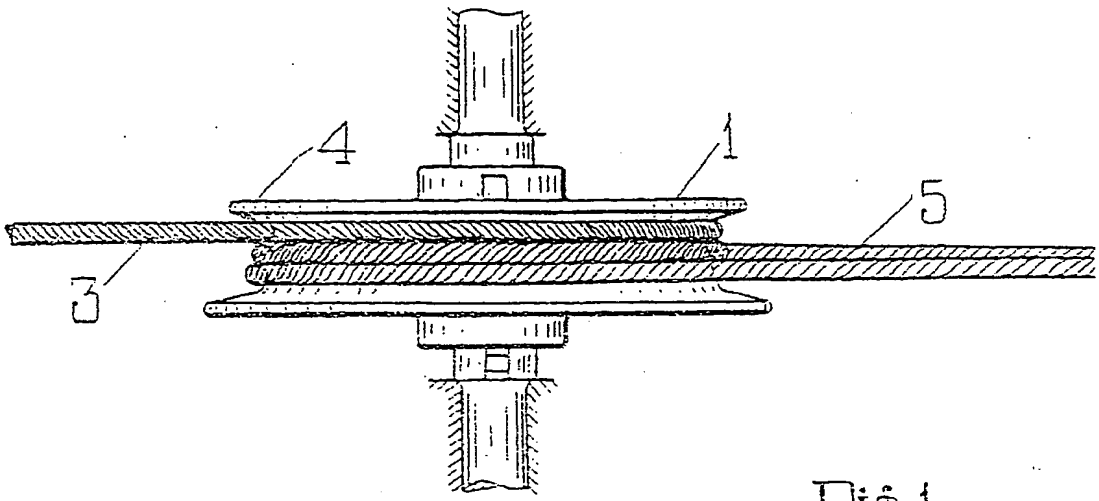

Fig.1.

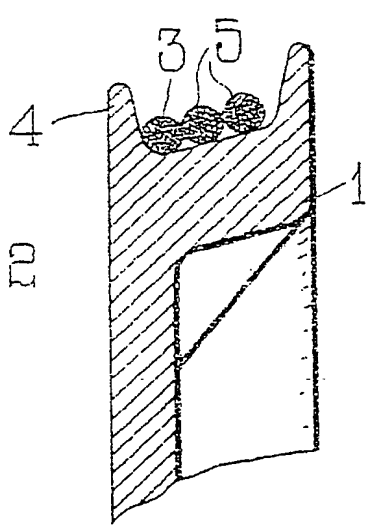

Fig.2.

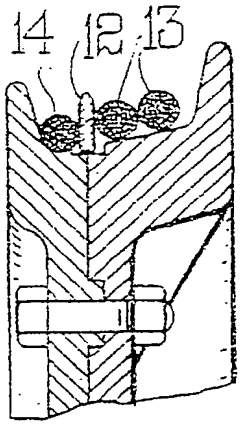

Fig.4.

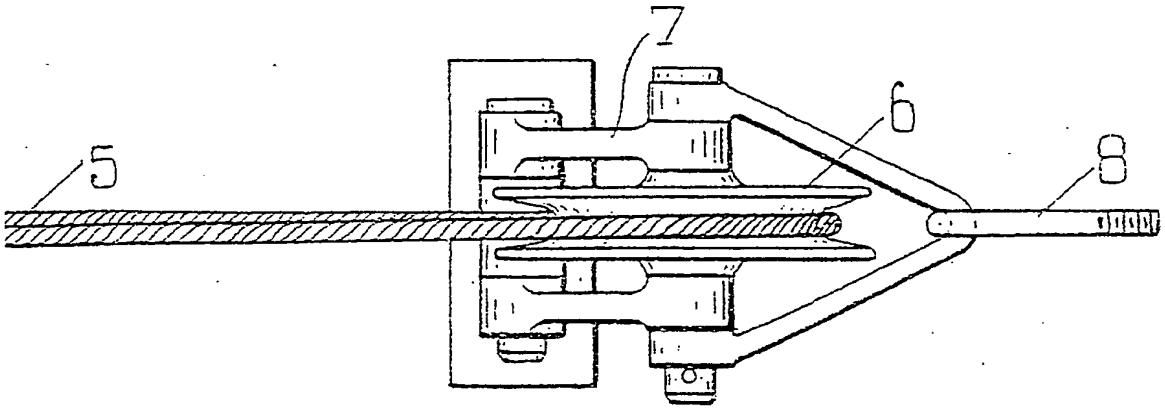

Fig. 1.

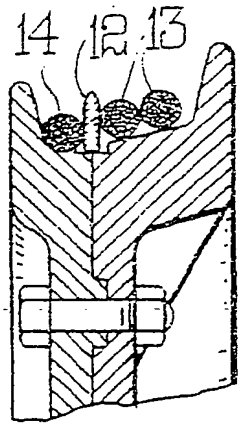

Fig. 4.

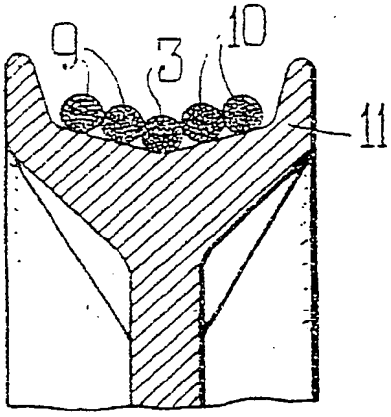

Fig. 3.

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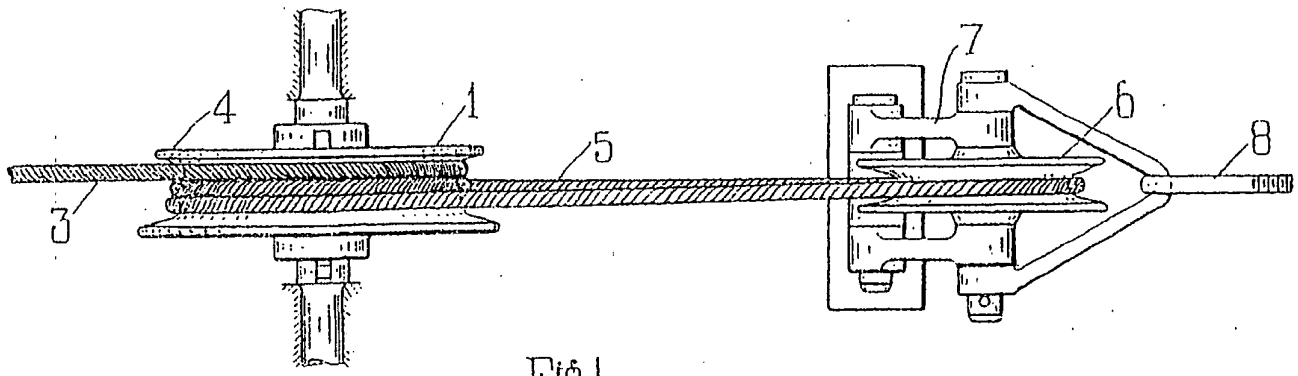

Fig.1.

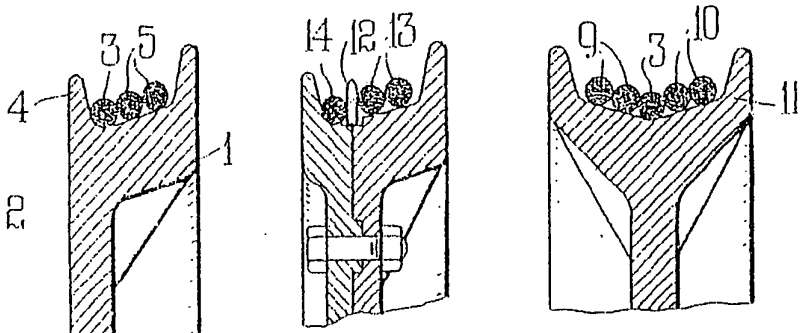

Fig.2. Fig.4. Fig.3.

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